

Booms, Busts, Rents and Yields **ViewPoint**

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BOOMS, BUSTS, RENTS AND YIELDS – A HISTORICAL PERSPECTIVE

By Jatin Chand
Forecasting Consultant
Pacific Region

SUMMARY This report examines the behavior of CBD office rents and yields near economic recessions and booms since 1970.

Introduction

With the Australian economy rapidly deteriorating in the wake of a synchronized global down turn, investors, owners and tenants alike are seeking some guidance on how Australian office markets respond to these global economic challenges.

Although the extent of the current global credit crunch is unprecedented, even by historical standards, an examination of past history does provide some empirical perspective on how rents, yields, and non-residential construction investment activity behaves over an economic cycle. Empirical patterns in past booms and busts may provide sensible parameters to use in order to assess current and therefore future data on rents and yields.

This paper uses a dating algorithm called the Bry-Boschan (1971) algorithm to identify peaks and troughs, also called booms and busts, for the long run or classical economic cycle. Moreover, the behaviour of Australian non-residential construction investment activity, rents and yields for each of the major CBD office markets are analysed over these periods. Quarterly data over the 1971-2008 period was used. A longer sample was not employed due to data availability issues.

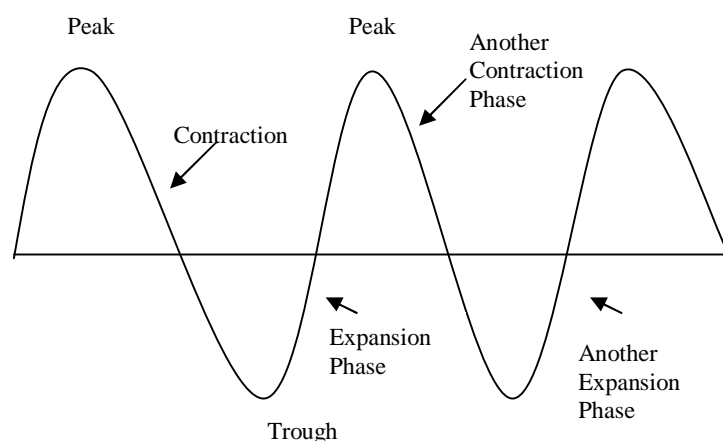
The Bry-Boschan algorithm

The Bry-Boschan algorithm locates peaks and troughs in the levels of economic data in the following way. Two successive [quarterly] periods of declines in the levels of economic activity is defined as a recession or trough. This definition is considered as the industry norm by market economists and it will be used in this paper. Conversely, two consecutive [quarterly] periods of increases in the levels of output is considered as a peak

or boom period. Therefore, a peak at time period 't+1' occurs when $y_{t+1} > y_t$ and $y_t > y_{t-1}$. Likewise, a recession at 't+1' arises when $y_{t+1} < y_t$ and $y_t < y_{t-1}$, where $\{y\}$ is a measure of the level of economic activity. This definition is also applied to non-residential construction investment (NRC) data to locate peaks and troughs so that a comparison can be made. The behaviour of rents and yields is assessed near these identified peaks and troughs.

Business cycle characteristics presented in Table 1 describe the frequency of booms and recessions, and summarise the average duration of a cycle, and average total time taken for both an expansion or contraction phase to complete. Duration of expansionary phases describes the average time taken to move from a trough to boom period over the economic cycle. Contraction phases describe the average time taken to move from booms to troughs. Figure 1 shows what a cycle looks like in theory.

Figure 1: Identifying Characteristics of a Business Cycle



In practice, a business cycle does not exhibit a perfect wave shape where peaks lead to troughs and vice versa. As Figure 2 indicates, quarterly growth rates in output and NRC are quite volatile and do not follow the nice path shown above.

Figure 2: Quarterly Australian GDP and Non-Residential Investment Activity Growth Rates

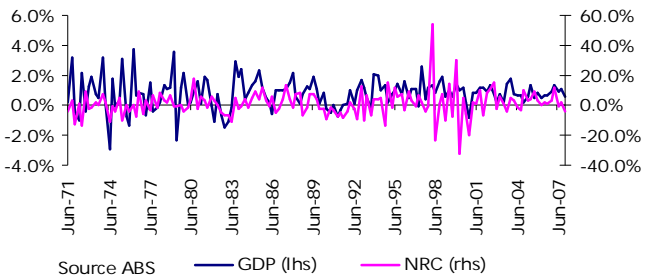
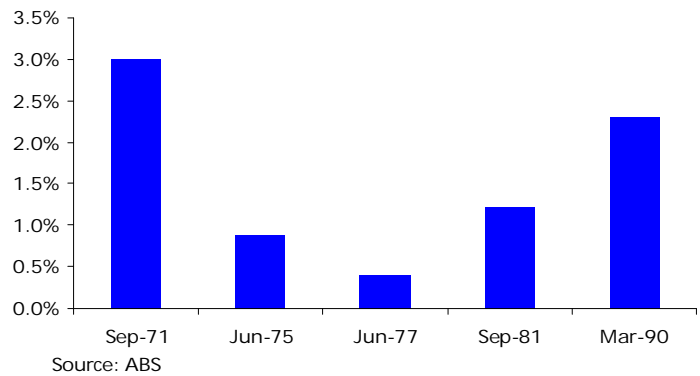


Figure 3: Australian Booms: Quarterly average real GDP log-linearised growth rates measured from previous trough to current peak



The Bry-Boschan algorithm essentially creates a wave pattern by locating all peaks and troughs, sorting them in order so that a peak is followed by a trough, then peak, trough and so on. This alternating sequence of located peaks and troughs is used to develop business cycle statistics. The average length of the business cycle measures the total time taken to move from peak to peak divided by the number of peaks in the cycle. The average duration of all contraction phases measures the total time taken to move from peak to trough over the economic cycles divided by the number of such phases. Similarly, the average duration of all expansionary phases makes allowances for time taken to move from a trough period to a boom.

Key Findings

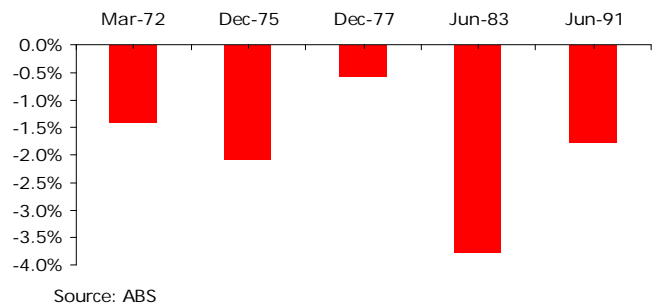
The broad results suggest that non-residential construction investment activity acts as a leading indicator during booms, but a lagging indicator in recessions. Moreover, yields tighten in total by between 2 and 17.4 basis points across the major CBD office markets during economic boom periods, but soften by a total of 18.6 to 44 basis points on average across all major recessions. Likewise, average prime net face rents rise in booms by 1.9% to 3.7%, but fall by 1.9% to 6.1% in recessions. Such asymmetry in pricing behaviour - where both yield tightening/rental increases in booms are smaller in magnitude than yield softening/rental declines in recessions - suggests that landlords are unwilling to take greater advantage of their bargaining power in booms by charging higher rents.

When did booms and busts in Real GDP occur?

If the strength of a boom or recession is measured by the growth rates experienced in the economy during a pre-specified timeframe, Figures 3 and 4 reveal that the September 1971 boom and the June 1983 recessions were the two most significant cyclical periods in Australia's economic history in the sample period.

Naturally, more specific economic measures can be used to determine which boom was the strongest and which recession was Australia's worst. In particular, the amount of unemployment experienced in recessions tends to provide a more accurate reflection of the severity of recessions. These growth rates nonetheless reveal that both the 1983 and 1991 recessions in particular, resulted in the most severe economic downturns over the period.

Figure 4: Australian recessions: Quarterly average actual (non-log linearised) % real GDP contraction measured from previous peak to current trough



GDP and Non-residential Activity: Are they related?

Australian non-residential construction investment (i.e. past completed activity) drives new developments and supply in the commercial property markets and understanding its relationship to output provides clues on future building activity. Table 1 provides a summary of the average business cycle characteristics of Australian output and NRC.

The average length of the business cycle, measured from peak to peak, is 4.6 years (18.5 quarters). Interestingly, the business cycle is asymmetric, with the duration of expansions lasting longer (i.e. 15.3 quarters) than the duration of contractions (3.6 quarters).

This suggests that when the economy begins to perform sluggishly and is likely to head into recession, it gets there quite quickly.

Since twice as many peaks and troughs are associated with non-residential construction investment activity than real GDP, greater volatility in this investment series suggests that its cycle characteristics are likely to be different to output.

The average length of the non-residential investment cycle is also relatively shorter than GDP at 3.7 years or 14.6 quarters. In the context of office markets, it can take up to 18 months to seek approval from council and ensure a site is ready for building, and a further 2-3 years to actually build.

Therefore, a fully completed building may take between 3 to 4.5 years. Our data suggests that approximating the actual building time cycle of 3.7 years seems reasonable; notwithstanding the fact that the ABS non-residential construction investment measure includes building of commercial sites other than office, such as retail, hotels and industrial sites. An interesting picture develops when the behaviour of non-residential construction investment activity is analysed near periods of economic recession for Australia.

Table 2 below indicates that during these down turn periods, output actually lags investment, suggesting that a slowing economy acts as warning signal that the non-residential construction investment sector and future office supply activity is about to possibly collapse too.

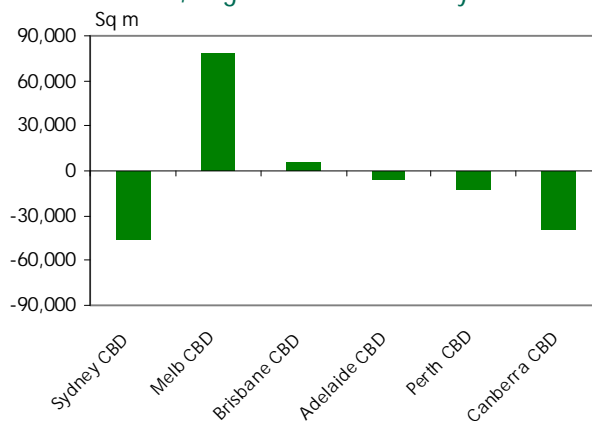
An important fact hidden in Table 2 is that there are two periods in the sample when non-residential investment activity experienced substantial declines. The first was for five quarters from December 1978 to March 1980, almost 2.25 years after the December 1977 recession. Secondly, NRC declined by 5.9% in log-linearised terms in September 1992 from its peak at September 1989, a period of 12 quarters. Bringing the analysis forward to the very recent past, Australia experienced a cumulative growth of 10.9% in NRC in the nine months to September 2008, despite experiencing negative growth in the June and December quarters 2007.

Therefore, even though Australia is yet to experience a recession in this cycle, there is no immediate threat that the growth in non-residential construction

investment activity is following similar patterns to those in 1980 and 1992. This suggests that at the very best, potential investors and property developers have learnt from the mistakes of the last recession by not engaging in substantial building activity this time around. At the very worst, it could also be argued that developers have not been able to add to supply due to credit availability issues.

Figure 5 plots the difference between new supply expected in February 2009 and that which was expected to proceed in August 2008 when the credit crunch had only just started to have a full impact on the investment market. With the exception of Melbourne and Brisbane, where a combination of pre-commitments such as the ANZ House (83,550 Sqm) on 801 Collins Street at Docklands and 11 projects already under construction respectively has resulted in some positive supply, some new supply is anticipated to complete in 2009 and 2010 has been deferred in most markets.

Figure 5: Total expected office supply change (sqm) for 2009-10, August 2008 to February 2009.



Source CBRE Research & Consulting

An examination of NRC during economic booms in Table 3 reveals that non-residential construction investment reaches its peak earlier by two quarters, suggesting that economic booms do not necessarily sustain the upswing in non-residential construction investment activity. In fact, the analysis in Tables 2 and 3 suggests that the non-residential investment sector is a lagging indicator during recessions but a leading indicator during economic booms. This complicates the ability of investment analysts to use the behaviour in the economy to make inferences about the non-residential investment sector and future supply over the entire business cycle.

TABLE 1: Business cycle characteristics summary

Variable	# of Peaks and Troughs	Average Duration of Peaks (quarters)	Average Duration of troughs (quarters)	Average Duration of expansions (quarters)	Average Duration of contractions (quarters)
Real GDP	5/5	18.5	19.3	15.3	3.6
NRC	10/10	14.6	14.3	9.3	5.0

Prime Net Face Rent in booms and busts: Do landlords have greater power?

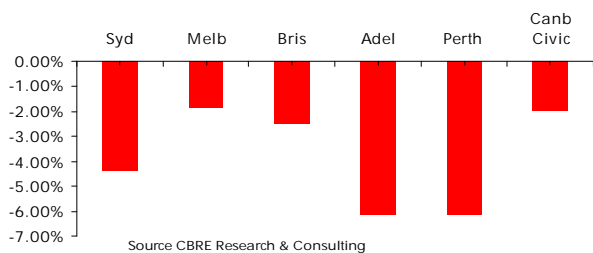
In a deregulated leasing market where tenants and landlords determine the rental price, an interesting question that arises is: Do landlords control bargaining power over tenants in the full course of an economic cycle? One would expect landlords to dominate in economic booms by charging higher rents but for tenants to dominate in recessions by seeking lower charges. The data indicates a different story. As expected, prime net face rent in the major CBD markets declined during periods of recessions (see Table 2 for recession dates).

TABLE 2: Economic collapse suggesting investment will follow

During an economic recession in....	Non-residential construction investment.....
Mar 1972	Reached its bottom 1 quarter later
Dec 1975	Hit its lowest point 2 quarters later
Dec 1977	Reached its nadir in March 1980, 9 quarters later, after peaking in Dec 1978
June 1983	Reached its trough in June 1983
June 1991	Reached its bottom 5 quarters later in September 1992

Figure 6 shows that on average, quarterly prime net face rent falls by -6.1% in Adelaide, followed by Sydney (-4.4%), Brisbane (-2.5%) and Melbourne (-1.9%) during the five major recessions in our sample.

Figure 6: Quarterly average decline in prime office net face rents in all major economic recessions since 1970 measured from previous peak to current trough



Statistics for Perth (-6.1%) and Canberra (-2.0%) should be interpreted with caution since data availability restricts computation of averages to June

1983 and 1991 recessions only. During economic booms (see Figure 7 & Table 3 for dates of booms), increases in the average prime office net face rent were strongest in Adelaide (3.7%), Brisbane (3.6%) and Canberra (3.2%) followed by Melbourne (2.2%), Sydney (2.0%) and Perth (1.9%).

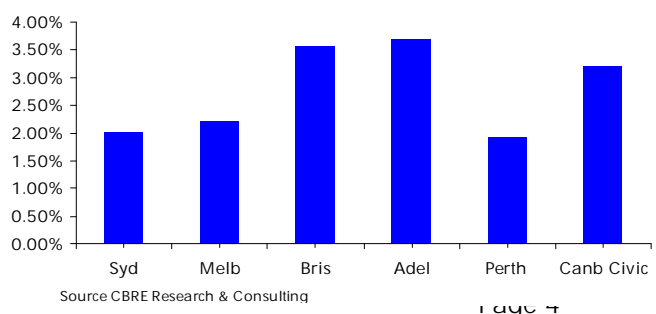
Note that the recently completed rental booms over 2005-07 for Perth and Brisbane CBDs are not included precisely because comparable rental falls in the present 'bust' cycle has yet to finish. The fact that quarterly average prime rents do not increase by more than 4% in booms but decline by more than 4% in bad times for some CBD office markets could be for a number of reasons.

TABLE 3: Investment booms arrive earlier than economic booms

During an economic boom in....	Non-residential construction investment.....
Sep 1971	Peaked two quarters earlier
June 1975	Peaked 5 quarters earlier
June 1977	Was in its 4 th quarter of recovery after reaching its trough in June 1976
Sep 1981	Was in its 6 th quarter of recovery after hitting rock bottom in March 1980
Mar 1990	Reached its bottom 5 quarters later in September 1992

It could be that landlords do not behave in a predatory manner in their pricing behaviour; possibly suggesting that a combination of goodwill to strong tenants and probable concerns for risk of potential income loss acts as an incentive to sign worthwhile long term leases over five to ten years.

Figure 7: Quarterly average increases in prime office net face rents in all economic major booms since 1970 from previous trough to current boom.



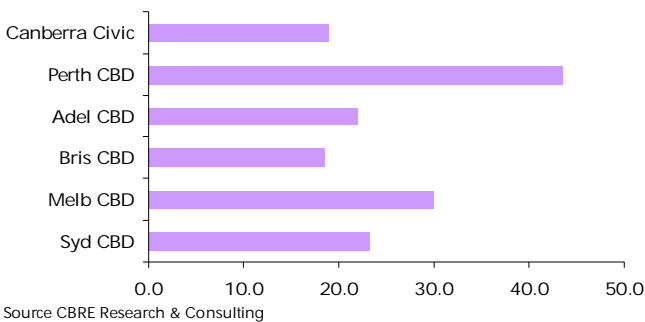
It could also be that the rental cycle does not respond immediately to economic booms but responds more quickly to busts.

Yields and the business cycle

Average prime yield, measured by the rental income of office property divided by its price, reflects the return on investment. If for a given level of rental income, the price of property falls, then the yield value increases or softens. During recessions, investment sentiment suffers and firms, both large and small, do not expand their operations by purchasing new assets. Consequently, prime yields usually soften during or near these periods.

Figure 8 shows that (average) prime office yields softened by 19.6 to 43.5 basis points across the major CBD markets across all major economic recession periods (recession dates listed in Table 2).

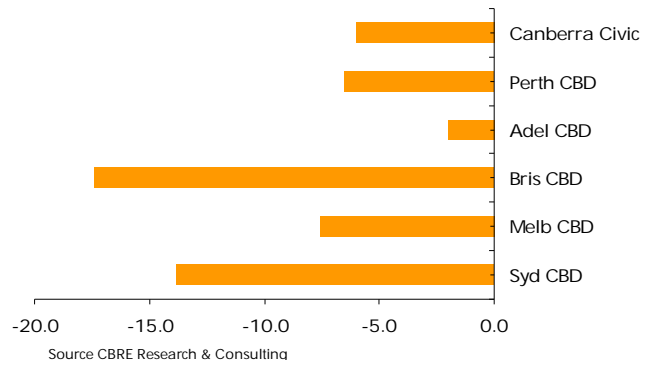
Figure 8: Average prime office yield basis point softening in all recession periods



Note that softening took place for over one to four quarters near each recession date point. Significant softening was witnessed in Perth (an average of 43.5 basis points across the five major recessions), Melbourne CBD (30), and Sydney CBD (23.2), followed by Adelaide CBD (22.0), Canberra Civic (19.0) and Brisbane CBD (18.6).

In contrast, during economic boom periods (see Figure 9 & Table 3) when sentiment was positive, prime yields tightened between 2 and 17.4 basis points on average (Figure 9). Significant average tightening was witnessed in Brisbane CBD (-17.4 basis points), and Sydney (-13.8). More moderate changes were experienced in Melbourne CBD (-7.6), Perth CBD (-6.5) and Canberra Civic (-6.0) with Adelaide CBD (-2.0) following. The range of prime yield tightening was smaller than for periods of softening, suggesting that office property does experience a greater reduction in their value during recessions than the corresponding increase in economic boom times. This indicates that the property investment cycle also does not align in synchronization with economic cycles.

Figure 9: Average tightening (basis points) in prime office yields in all boom periods



An application: Measuring the impact of the credit crunch on yields

An interesting fact that emerges from the office yield analysis study is that the 1991 recession experienced greater yield softening than earlier recessions. Companies with large debt due to excessive borrowing following financial deregulation in the 1980's were not able to meet their obligations once banking authorities started to tighten monetary policy.

Therefore, purchasing and selling commercial office properties, during a period where the recession coincided with a large supply wave, saw yields soften (see Table 4). Although the global credit crises experienced today is different to the one faced by Australia in the 1990's – both in scope and shape – the outcomes are very similar. There is a strong unwillingness by potential investors to commit to office investments even though monetary authorities are responding favourably by lowering interest rates.

Differences between now and the 1991 recession relate to the size of the softening. Column (4) of Table 4 reveals that in most capital cities, softening in yields exceeded the amount experienced in 1991 by between 25 to 164 basis points. Investors have become more careful in their purchase and sale decisions, resulting in larger softening in the smaller CBD office markets such as Adelaide, Canberra and Perth.

Melbourne, considered as one of the lowest and most stable capital cities in relation to rental growth, has only experienced a softening of 73 basis points, a figure still yet to reach its 1991 case of 100 basis points softening.

Although a recession has yet to reach Australia, the key fundamental question is:

Is this current period of softening set to continue or are we nearing the end of the yield softening cycle?

With the RBA cash rate at a historically all time low at 3.25%, no major banking collapse in Australia due to sub-prime issues, and with the Federal and State Governments committed to infrastructure projects with public-private partnerships, there is some scope to argue that yield softening may conclude by the end of 2009.

Past history indicates that Sydney CBD yields softened consecutively between four to eight quarters, Melbourne CBD (1-2 quarters), Brisbane (2-4 quarters), Adelaide Core (2-3 quarters), Perth CBD (4-7 quarters) and Canberra Civic (3-4 quarters). As the magnitude of current softening has exceeded the previous worst experience (see column (3) of Table 4), with yields in all major CBD office markets currently in their fourth consecutive quarter of softening (with Perth CBD in its 5th quarter), there is definitely some scope to argue that yields in 2010 may stabilise at the 2009 level.

Conclusions

As Australia is likely to enter a recession at some point either this year or possibly the next, the analysis of past recessions suggests that rents fall quickly, yields soften but non-residential construction activity contracts some point thereafter. With analysis on the credit crunch indicating that softening this time around has exceeded those in previous recessions, this paper strongly suggests that this is the right time for tenants and investors to consider investing in Australian office markets.

With a banking sector that remains resilient, and with interest rates set to fall further, the time is ripe for potential entrants to take advantage of Australia's stable commercial office sector by re-positioning their portfolio investments to include some assets within this sector.

TABLE 4:: The impact of the credit crunch

Capital City office	Quarterly average yield softening across all recessions (1) (basis pts)	Quarterly average yield softening in 1991 recession (2) (basis pts)	Quarterly average yield softening since beginning of credit crunch (3) (basis pts)	Credit Crunch Effect (3) – (2) (basis pts) (4)
Sydney CBD	23.2	73	138	+65
Melbourne CBD	30.0	100	73	-27
Brisbane CBD	18.6	100	162	+62
Adelaide CBD	22.0	95	229	+164
PerthCBD	44.0	100	126	+26
Canberra Civic	19.0	25	119	+94

FOR MORE INFORMATION PLEASE CONTACT:

Jatin Chand
Forecasting Consultant
CBRE Research & Consulting
02 9333 3590 jatin.chand@cbre.com

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